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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,054	09/15/2003	Kevin D. Foust	58998US002	3234
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3M INNOVATIVE PROPERTIES COMPANY		EXAMINER		
PO BOX 33427		STAICOVICI, STEFAN		
ST. PAUL, MN 55133-3427		ART UNIT	PAPER NUMBER	
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DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/664,054	FOUST, KEVIN D.	
	Examiner Stefan Staicovici	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 26 June 2006.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 7-11,13-19 and 21-38 is/are pending in the application.

4a) Of the above claim(s) 7-11,13-19 and 34-38 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 21-33 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed June 26, 2006 has been entered. Claims 7-11, 13-19 and 21-38 are pending in the instant application.

Election/Restrictions

2. Newly submitted claims 34-38 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: newly submitted claims 34-38 are drawn to non-elected Species B a process for marking a thermoplastic by ablating said thermoplastic substrate (protrusion forming).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 24-38 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 21-25, 27, 29 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 01/45559 A1.

Regarding claim 21, WO 01/45559 A1 teaches the claimed process of laser marking a dental container including, providing a container having an exterior surface and an interior chamber, the container formed from a thermoplastic material having a laser enhanced outer layer, and inserting dental restorative material (light curing) into the interior chamber of the container (see pages 4-5). Further, WO 01/45559 A1 teach that said laser marking does not adversely affect the function of the dental container (see page 7, lines 20-27). It is noted that the laser enhanced outer layer is an integral part of the container, *i.e.*, a coating, hence it is submitted that the container is made from a laser-enhanced material. Furthermore, WO 01/45559 A1 also teaches directly laser marking the container, hence teaching a container made from a laser-enhanced material (see page 2, lines 26-27).

In regard to claim 22, WO 01/45559 A1 teaches inserting dental restorative material (light curing) into the interior chamber of the container (see pages 4-5).

Specifically regarding claim 23, WO 01/45559 A1 teaches laser marking of numbers and numerals (see Figure 1).

Regarding claims 24 and 25, WO 01/45559 A1 teaches that said laser marking does not adversely affect the function of the dental container (see page 7, lines 20-27).

In regard to claim 27, WO 01/45559 A1 teaches numeric markings (see Figure 1).

Specifically regarding claims 29 and 30, WO 01/45559 A1 teaches a black container (page 6, line 27). It is submitted that a black container inhibits the transmission of light. Further,

it is submitted that visible light has a wavelength range of 400-700 nm, hence WO 01/45559 A1 teaches a container that inhibits transmission of light radiation in the range of 400-700 nm (370-530 nm).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 21-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin *et al.* (US Patent No. 5,100,320) in view of Feng *et al.* (US Patent No. 5,977,514) and in further view of WO 01/45559 A1.

Martin *et al.* ('320) teach the basic claimed process of marking a dental container including, providing a container having an exterior surface and an interior chamber, the container formed from a nylon (laser-enhanced) material and including pigments that make the container opaque to light (inhibit the transmission of light radiation of selected wavelengths therethrough) and inserting light curing (radiation-reactive) dental restorative material into the interior chamber of the container (see col. 3, line 67 through col. 4, line 18; col. 4, lines 55-67 and col. 6, line 54 through col. 7, line 6).

Regarding claim 21, Martin *et al.* ('320) do not teach forming a marking using laser radiation from a Nd:YAG laser, wherein said mark is a letter or a bar code. WO 01/45559 A1

teaches that it is well known and desirable to laser mark a product container with a variety of informational data, *e.g.*, nature of the product (shape, size, color, weight, volume), name of the manufacturer or seller of the product, country of origin and processing (see page 1, lines 21-30 and page 2, lines 26-27). Feng *et al.* ('514) teach using a Nd:YAG laser for marking nylon materials as an alternative to ink marking as a means for identifying products, wherein said mark is a letter or a bar code (see col. 1, lines 9-17 and col. 2, lines 51-54). Further, Feng *et al.* ('514) specifically teach adding color additives to nylon to make the nylon absorptive of laser radiation (see col. 2, lines 50-55). That is, in view of the teachings of Feng *et al.* ('514) and, because, Martin *et al.* ('320) teach a nylon material having pigments added thereto, it is submitted that the nylon material of Martin *et al.* ('320) is a laser-enhanced material. Therefore, in view of WO 01/45559 A1 teaching a desirability to laser mark a container, it would have been obvious for one of ordinary skill in the art to use the laser marking process of Feng *et al.* ('514) in the process of Martin *et al.* ('320) for a variety of advantages that laser marking provides such as, improved process control, reduced waste and ease in modifying the required mark in a short period of time, and also because, WO 01/45559 A1 specifically teaches the desirability to laser mark a product container.

In regard to claim 22, Martin *et al.* ('320) teach inserting light curing (radiation-reactive) dental restorative material into the interior chamber of the container (see col. 3, line 67 through col. 4, line 18; col. 4, lines 55-67 and col. 6, line 54 through col. 7, line 6).

Specifically regarding claim 23, WO 01/45559 A1 teaches that it is well known and desirable to laser mark a product container with a variety of informational data, *e.g.*, nature of the

product (shape, size, color, weight, volume), name of the manufacturer or seller of the product, country of origin and processing (see page 1, lines 21-30 and page 2, lines 26-27). Therefore, in view of WO 01/45559 A1 teaching a desirability to laser mark a container, it would have been obvious for one of ordinary skill in the art to use the laser marking process of Feng *et al.* ('514) to mark information regarding the dental material in the container in the process of Martin *et al.* ('320) for a variety of advantages that laser marking provides such as, improved process control, reduced waste and ease in modifying the required mark in a short period of time, and also because, WO 01/45559 A1 specifically teaches the desirability to laser mark a product container with such information.

Regarding claim 24, Martin *et al.* ('320) specifically teach a container formed from a nylon (laser-enhanced) material and including pigments that make the container opaque to light (inhibit the transmission of light radiation of selected wavelengths therethrough) and inserting light curing (radiation-reactive) dental restorative material into the interior chamber of the container (see col. 3, line 67 through col. 4, line 18; col. 4, lines 55-67 and col. 6, line 54 through col. 7, line 6). Hence, it is submitted that the nylon material is inert relative to the dental material in order for the invention of Martin *et al.* ('320) to function as described.

In regard to claim 25, WO 01/45559 A1 teaches that it is well known and desirable to laser mark a product container with a variety of informational data, *e.g.*, nature of the product (shape, size, color, weight, volume), name of the manufacturer or seller of the product, country of origin and processing (see page 1, lines 21-30 and page 2, lines 26-27). Therefore, it submitted that when laser marking a nylon container, as in the process of Martin *et al.* ('320) in view of

Feng *et al.* ('514) and in further view of WO 01/45559 A1, the resulting marked container is not adversely affected by said laser radiation in order for it to function as intended, hence it is submitted that the laser marked container of Martin *et al.* ('320) in view of Feng *et al.* ('514) and in further view of WO 01/45559 A1 is not adversely affected by the laser radiation.

Specifically regarding claims 26-28, Feng *et al.* ('514) teach using a Nd:YAG laser for marking nylon materials as a means for identifying products, wherein said mark is a letter or a bar code (machine-readable) (see col. 1, lines 9-17 and col. 2, lines 51-54). Therefore, in view of WO 01/45559 A1 teaching a desirability to laser mark a container, it would have been obvious for one of ordinary skill in the art to use the Nd:YAG laser to mark a bar code or alpha numeric characters as taught by Feng *et al.* ('514) in the process of Martin *et al.* ('320) for a variety of advantages that laser marking provides such as, improved process control, reduced waste and ease in modifying the required mark in a short period of time, and also because, WO 01/45559 A1 specifically teaches the desirability to laser mark a product container with such information.

Regarding claims 29 and 30, Martin *et al.* ('320) teach adding carbon black as a pigment, hence teaching making the container in a black color (see col. 4, lines 55-60). Further, it is noted that Martin *et al.* ('320) teach adding carbon black in order to stop transmission of light. It is submitted that visible light has a wavelength range of 400-700 nm, hence Martin *et al.* ('320) teach a container that inhibits transmission of light radiation in the range of 400-700 nm (370-530 nm).

In regard to claim 31, Martin *et al.* ('320) in view of Feng *et al.* ('514) and in further view of WO 01/45559 A1 does not specifically teach a Brightness Scaled Contrast of at least 50.

However, the process of Martin *et al.* ('320) in view of Feng *et al.* ('514) and in further view of WO 01/45559 A1 specifically teach a process for laser marking a container, wherein said marking is visible to a relative contrast level. As such a given contrast level is required in order for the invention of Martin *et al.* ('320) in view of Feng *et al.* ('514) and in further view of WO 01/45559 A1 to function as described. Hence, it is submitted that the laser mark formed by the process of Martin *et al.* ('320) in view of Feng *et al.* ('514) and in further view of WO 01/45559 A1 has a Brightness Scaled Contrast of at least 50 in to function as described, specifically as a marking that is distinguishable due to a contrast level.

Specifically regarding claims 32 and 33, WO 01/45559 A1 specifically teaches that laser marking is advantageous because it permits the user to easily control the motion of the laser beam in such a way as to easily change the markings made from one container to another. Further, it is well known to mark a plurality of containers when marking a single container is known. *See*, MPEP §2144.04(VI)(B), citing, In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) (...“mere duplication of parts has no patentable significance unless a new and unexpected result is produced.”). Therefore, it would have been obvious for one of ordinary skill in the art to laser mark a plurality of containers with similar or different markings in the process of Martin *et al.* ('320) in view of Feng *et al.* ('514) and in further view of WO 01/45559 A1 because of known advantages such as increased productivity and also because, WO 01/45559 A1 specifically teaches that laser marking is advantageous because it permits the user to easily control the motion of the laser beam in such a way as to easily change the markings made from

one container to another, hence suggesting laser marking a plurality of containers with similar or different markings.

7. Claims 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/45559 A1 in view of Feng *et al.* ('514).

WO 01/45559 A1 teaches the basic claimed process as described above.

Regarding claims 26, although WO 01/45559 A1 teaches letter and numeral marking, WO 01/45559 A1 does not teach a bar code marking. However, the use of bar codes as a marking symbol is well known as evidenced by Feng *et al.* ('514) who teach laser marking a bar code and that bar codes and data codes (numerals and letters) are equivalent marking alternatives (see col. 1, lines 9-17). Therefore, it would have been obvious for one of ordinary skill in the art to have marked a bar code as taught by Feng *et al.* ('514) by the laser process of WO 01/45559 A1 because, Feng *et al.* ('514) specifically teach that bar codes and data codes (numerals and letters) are equivalent marking alternatives and also because bar codes provide more information to the end user as to the product, hence providing for an improved product.

In regard to claim 28, although WO 01/45559 A1 teaches laser marking, WO 01/45559 A1 does not teach a Nd:YAG laser. However, the use of Nd:YAG lasers for marking thermoplastic products is well known as evidenced by Feng *et al.* ('514) who teach laser marking a thermoplastic substrate using a Nd:YAG laser (see col. 1, line 66 through col. 2, line 2). Therefore, it would have been obvious for one of ordinary skill in the art to have used a Nd:YAG laser as taught by Feng *et al.* ('514) in the process of WO 01/45559 A1 because of known advantages that a Nd:YAG laser provides such as reduced spot dimensions, increased energy

density and also because, Feng *et al.* ('514) who specifically teach laser marking a thermoplastic substrate using a Nd:YAG laser, hence suggesting the use of a Nd:YAG laser in the process of WO 01/45559.

8. Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/45559 A1.

WO 01/45559 A1 teaches the basic claimed process as described above.

Regarding claim 31, WO 01/45559 A1 does not specifically teach a Brightness Scaled Contrast of at least 50. However, the process of WO 01/45559 A1 specifically teaches a process for laser marking a container, wherein said marking is visible to a relative contrast level. As such, a given contrast level is required in order for the invention of WO 01/45559 A1 to function as described. Hence, it is submitted that the laser mark formed by the process of WO 01/45559 A1 has a Brightness Scaled Contrast of at least 50 in to function as described, specifically as a marking that is distinguishable due to a contrast level.

In regard to claims 32 and 33, WO 01/45559 A1 specifically teaches that laser marking is advantageous because it permits the user to easily control the motion of the laser beam in such a way as to easily change the markings made from one container to another. Further, it is well known to mark a plurality of containers when marking a single container is known. *See*, MPEP §2144.04(VI)(B), citing, *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) (...“mere duplication of parts has no patentable significance unless a new and unexpected result is produced.”). Therefore, it would have been obvious for one of ordinary skill in the art to laser mark a plurality of containers with similar or different markings in the process of WO 01/45559

A1 because of known advantages such as increased productivity and also because, WO 01/45559 A1 specifically teaches that laser marking is advantageous because it permits the user to easily control the motion of the laser beam in such a way as to easily change the markings made from one container to another, hence suggesting laser marking a plurality of containers with similar or different markings.

Response to Arguments

9. Applicant's arguments filed June 26, 2006 have been considered.
10. Applicant argues that WO 01/45559 does not teach a container formed from a 'laser-enhanced polymer' (see pages 8-9 of the amendment filed 6/26/2006). However, WO 01/45559 A1 teaches that the laser enhanced outer layer is an integral part of the container, *i.e.*, a coating, hence it is submitted that the container is made from a laser-enhanced material. Further, as presented above, WO 01/45559 A1 also teaches directly laser marking the container, hence teaching a container made from a laser-enhanced material (see page 2, lines 26-27). Furthermore, it is noted that "the transitional term 'comprising,' which is synonymous with 'including,' 'containing,' or 'characterized by,' is inclusive or open-ended and does not exclude additional, unrecited elements or method steps." *See*, MPEP §2111.03, citing, Mars Inc. v. H.J. Heinz Co., 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004).
11. All of Applicant's additional arguments (see pages 9-10 of the amendment filed 6/26/2006) have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Staicovici, Ph.D. whose telephone number is (571) 272-1208. The examiner can normally be reached on Monday-Friday 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson, can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stefan Staicovici, PhD


9/15/00
Primary Examiner

AU 1732

September 10, 2001